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ABSTRACT

This article reports on an informal study conducted to identify and analyze the content of the five leading journals in the field of educational technology. An email survey was used to identify the top five journals being read by educational technologists. An e-mail message was sent to a total of 85 faculty members at nine schools with nationally recognized programs in educational technology asking them to list in rank order the top five journals in educational technology. In addition, they were asked to respond with one piece of advice for those just starting to write for publication. Results were summarized, and then an analysis of the 1998-1999 issues of the top journals was conducted to identify the average number of articles per publication, general types of articles, and topic categories of articles. A total of 25 usable responses were received (31% response rate) "Educational Technology Research and Development" ("ETR&D") was identified in this study as the leading journal in the field. The content and type varied from journal to journal based on the overall goals and intended audience of the journal. Suggestions for writing and publishing that were given on the e-mail survey are included. (AEF)

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Identification and Analysis of the Leading Journals in the Field of Educational Technology: A Guide for Reading and Writing about Educational Technology

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Abstract

This article reports on a study conducted to identify and analyze the content of the five leading journals to assist those reading, teaching and publishing in the field of educational technology. Email was used to contact professionals in the field. They were asked to identify the top five journals in educational technology. Results were summarized then the leading journals were reviewed for content and number of articles. ETR&D was identified as the leading journal in the field. The content and type varied from journal to journal based on the overall goals and intended audience of the journal. Suggestions for writing and publishing are included.

Introduction

Research, teaching and service continue to be the three pillars supporting recognition, promotion and tenure in the academic world. For many, the greatest contribution is research. Research, theory and changing paradigms must be communicated to the field in order to make a positive contribution. This is as true for educational technology as it is for other academic areas. Publication therefore becomes a primary role for the novice as well as the experienced professor and for the graduate students they mentor.

The process of publication seems at times almost mystical. Young professionals tend to be intimidated by the whole idea, especially the prospect of rejection. They view successful scholars as possessing great wisdom and intellect when in reality they could be more accurately characterized as persistent, systematic and, sometimes, just plain lucky!

This article provides a background of the literature in educational technology related to publication and presents results of an informal study which identified and analyzed the top ranked journals in the field. This information should be of use to both novice and experienced scholars and as they share their research, knowledge and expertise in the field of educational technology.

Background

Publication has always been and continues to be of great interest for scholars, researchers, and graduate students because it is the road to making a contribution to the field and contributing to their personal goals of professional advancement. A review of the literature related to publishing in the educational technology field yielded some interesting findings.

Ninety percent of the articles identified discussed general publishing principles. Thompson (1995) complied a what-to-do list, and Newren (1992) contributed a list of major causes of rejection for writers to consider before and after they send in their manuscripts to a journal publisher. Abelson (1990), the editor of the journal *Science*, talked about his experiences in evaluating submitted manuscripts. He believed in the value of peer review, and tried to caution writers to beware of any unethical behaviors such as plagiarism.

Newren (1992), Thompson (1995), Clemente, Shapiro, Miheim, and Bohlin (1990) each summarized vital information of the many different journals in the educational technology field. Types of information presented included contact information, acceptance rate, readership, decision time, publication time, etc. These summaries are useful for prospective authors to help them familiarize themselves with different journals in order to more effectively select a journal for manuscript submission. Yet, not one of these articles examined the types or topics of the articles actually published in the journals. Thompson (1995) suggest that all perspective writers should look into the matter of finding the types and topics patterns in addition to identifying the guidelines for authors of the journal they have selected to send their manuscript. This step is vital to the process of getting a manuscript accepted by the specific journal.

The review of previous articles related to scholarly publication in the field of educational technology identified a need for a study that identified information about types and topics of articles in the top ranked

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educational technology journals to assist scholars in selecting the best match for their manuscript and to help them recognize the current trends and future direction in educational technology. This study attempts to fill that need.

Methodology

An email survey was used to identify the top five journals being read by educational technologists. Websites of nine schools with nationally recognized programs in educational technology were used to identify faculty in the field. An email message was sent to 85 faculty members asking them to list in rank order the top five journals. In addition, they were asked to respond with one piece of advice for those just starting to write for publication.

An analysis of the 1998-1999 issues of the top journals was conducted to identify the average number of articles per publication, general types of articles, and topic categories of articles. Four categories for classification of journal articles were identified by Klein (1997) in a review of *Educational Technology Research and Development*. These categories included case study, description, empirical research, and literature review. For this study, these categories were revised to include descriptive, research, book review and editorial articles.

Topic categories of articles emerged from the analysis conducted by two researchers. Categories were not exclusive but topics were placed under the theme that best reflected the intent of the article. Four broad themes emerged from the review: design, environment, student, and teacher. A fifth category (other) was used for additional topics that either encompassed several categories or seemed to fit none of the emergent themes.

Where possible, actual copies of the journal were used for review purposes. The use of on-line databases including ERIC and Education Abstracts facilitated the review process.

Results

A total of 30 responses were received to the email survey with each school represented by at least one faculty member. Five of the responses simply indicated the individual was no longer in the field or had moved to another institution. Responses from the remaining 25 (31% response rate) were summarized to identify the top five journals. A total of 31 different journals were identified. *Educational Technology Research and Development (ETR&D)* was ranked first or second by 18 of those responding.

The Big Five

To identify the top five journals, responses were assigned values based on rank. The number one journal listed by an individual received a score of five with others in descending order. Scores across all responses were summed and journals with the highest values were identified. The top five journals in order with their scores were:

Educational Technology Research and Development	91
Performance Improvement Quarterly	35
Educational Technology	31
Journal of Educational Computing Research	29
Instructional Science	28

Types and Topics

An understanding of the number of issues and number of articles published on a yearly basis can be one factor in selecting a journal for publication (Table 1). Three of the five top journals are published quarterly. In the subscription information, *Instructional Science* indicates it is published six times a year. A review of the actual citations and abstract seems to indicate that while six numbers are used for each volume, only four actual publications could be located. Numbers 1 and 2, and numbers 3 and 4 for both 1998 and 1999 were found to be combined into one issue.

All articles including introductions to special issues and book reviews were counted. The average number of articles per year per journal varied from a low of 25 to a high of 62 (Table 1). Similarly, the average number of articles per issue varied from just under six for *Journal of Educational Computing Research* to almost 10 for *Educational Technology*.

Table 1: Summary of Average Number of Articles per Issue of the Top Five Journals.

Journal	Number of issues per year	1998 articles	1999 articles	Average per issue
Educational Technology Research and Development	4	36	40	9.5
Performance Improvement Quarterly	4	37	40	9.6
Educational Technology	6	57	62	9.9
Journal of Educational Computing Research	8	49	43	5.8
Instructional Science	4 (6)*	25	31	7

*Publisher indicates six issues are published yearly, however issues 1-2 are combined as are 3-4 resulting in only 4 publications a year

Simply knowing the numbers of articles per publication is not enough to select a journal for publication. It is also important to know what types of articles are generally published. Four general categories (Descriptive, research, editorial, and book review) were used to review all five journals. Descriptive articles had the greatest diversity and included description of theory, practice, models, curriculum, etc. Research encompassed articles reporting empirical research (both quantitative and qualitative) and evaluation. Introductions and conclusions to special issues were included in editorial articles.

Our review indicated that descriptive articles were in the majority and articles reporting results of research were second (Table 2). Three of the top five appear to have a good balance between research and description though all three publish more descriptive articles than research articles. *Educational Technology* focuses almost exclusively on descriptive articles and the *Journal of Educational Computing Research* leans heavily toward publishing more research articles.

Table 2: Summary of Types of Articles

Journal	Descriptive	Research	Editorial	Book Review
Educational Technology Research and Development	40	27	7	4
Performance Improvement Quarterly	43	22	8	2
Educational Technology	109	9	1	0
Journal of Educational Computing Research	15	63	1	13
Instructional Science	33	20	6	0

The third factor we looked at when reviewing the top five publications related to topics. A constant comparative method was used to identify themes of article topics. The four emergent themes were design issues, environment issues, student attributes, and teacher concerns and attributes. The following section presents a summary of article topics organized by journal. An overview of each journal presenting mission and goals, and subscription information is also included.

Educational Technology Research and Development (ETR&D)

ETR&D is a scholarly journal published quarterly be the Association for Educational Communication and Technology (AECT). Each issue includes two sections: one devoted to research, both practical and applied, and one to design and development issues. Issues frequently include book and international reviews as well as research abstracts (http://www.aect.org/Pubs/etrdweb/etr_d.html, July 12, 2000). Cabell's Directory of Publishing Opportunities in Education, 5th Edition (1998) indicated ETR&D had a circulation of close to 5,000 and an acceptance rate of 11-20%.

Volumes 46 and 47 of ETR&D, a total of eight issues, were reviewed for this study. The large number in the design category are representative of the development section of the journal. Several sub-theories of design emerged including:

- Theory and models (systems theory, ARCS model, constructivism, activity theory);
- Media and attributes (authoring systems, multimedia, ILS, digital manipulatives);
- Design principles (needs assessment, evaluation); and
- Learning and cognition (knowledge management, user-design, cases, cognitive approach, design experts).

The primary topic under environment issues was interaction. Interaction related topics included learning communities, cooperation, and electronic classrooms. Other environment topics were accessibility, support and organizational complexity. Student attribute topics included achievement, recall and transfer, preferences, and reflection. Topics related to teacher focused heavily on teacher preparation but also looked at planning, methods, management, and support issues.

Because of ETR&D's focus on research, the prime category that did not seem to fit any of the themes were topics related to research issues. These topics related to changing paradigms and theories, and research methodologies.

Performance Improvement Quarterly (PIQ)

Bob Mager on the PIQ website (**http://www.fsu.edu/~lsi/piqweb/**, July 12, 2000) provides insight into the focus of PIQ with the following quote:

> Serious researchers in various corners of performance technology will find PIQ a scholarly source of current research by some of their more notable colleagues. Practitioners will find thought-provoking reports about leading-edge ideas and techniques that may influence their practice. If you're serious about performance technology, you should be reading Performance Improvement Quarterly.

PIQ is a quarterly publication of the Learning Systems Institute of Florida State University in cooperation with the International Society of Performance Improvement.

Volumes 11 and 12, numbers 1-4 of *Performance Improvement Quarterly*, a total of eight issues were reviewed for this study. There were three special issues during this time: global distance learning, diversity, and action learning. These topics also appeared in the regular issues.

It was more difficult to fit the topics in *Performance Improvement Quarterly* into themes. The focus of these articles was on the corporate/business environment. Articles related to instructional design were featured in almost every issue. A variety of ID models were described and research results related to emerging models of design were presented. Environment related issues also appeared prominently. The distance learning environment was featured frequently and included topics related to international distance learning, delivery systems, history and definitions. Student issues included performance/achievement, transfer, perceptions, and lifelong learning. Little coverage was given to teacher topics. Cost benefit and analysis appeared frequently as did topics related to diversity.

Educational Technology

Educational Technology is a bi-monthly publication with a readership of 3000-4000. Manuscripts are reviewed in-house with an acceptance rate of 21-30% (Cabells, 1999). This journal does not focus on research articles but has a more general slant. "The editors are looking generally for articles which *interpret* research and/or practical applications of scientific knowledge in education and training environments" (http://www.lbcoyote.com/resource/pub/edutech.html). A big plus with this journal for authors is the turn around time. Notification of acceptance is usually only a couple of weeks versus the months of waiting that accompany submission to other journals.

Volumes 38 and 39 were reviewed for this study. One special issue "Integrating cognition and affective domains of learning" was identified; and two special sections: "Return on investment in educational technology" and "Intelligence tutoring and learning environments". The articles included in *Educational Technology* have a more conversational tone than the articles found in the other journals reviewed for this study. Articles also tended to be shorter and included a greater variety of topics and viewpoints.

Design and environment themes tended to dominate. Design sub-categories were similar to those found in ETR&D, however the topics included in the sub-categories were more varied. Examples include:

- Theory and models (systems model, social systems, interactive model, conversational paradigm, alternative paradigms, postmodernism)
- Media and attributes (PowerPoint, multimedia, simulations, expert systems, ILS, games, WWW, screen design)
- Design principles (usability, feedback, planning); and
- Learning and cognition (independent learners, affective domain, discovery learning).

Environment interaction issues focused on the virtual classroom, virtual events, online education, community of practice, and international collaboration. Other environment topics included educational reform and specific environments of distance learning and Internet.

Student themes fell into two categories: learning and achievement including future skills and information literacy skills; and characteristics such as gender differences, mental models, and self-regulation. Few article topics

seemed to address teacher issues or characteristics. Other topics included in *Educational Technology* were systemic change, diversity, federal policy, and future visions.

Journal of Educational Computing Research

Baywood Publishing publishes this journal eight times a year. Articles include both practice and theory with an emphasis in four broad areas: 1) outcome effects of educational computing applications, 2) design and development, 3) research, and 4) foundations in educational technology (both theory and historical).

> The Journal's editors view the term "education" in its broadest sense. The use of computer-based technologies at all levels of the formal education system, business and industry, home-schooling, lifelong learning and unintentional learning environments, are examined.
>
> (http://www.baywood.com/site/new2/viewbook.cfm?id=100133&c=, July 12, 2000)

According to Cabell's (1998), the *Journal of Educational Computing Research* has a readership of approximately 1000 with an acceptance rate of 11-20%.

The primary theme that emerged from a review of the topics in volumes 18-21 of *Journal of Educational Computing Research* was student attributes. Three sub-categories were identified:

- Student learning (achievement, prerequisite skills, critical thinking and problem solving);
- Learning and cognitive styles; and
- Characteristics (attitudes, perceptions, anxiety, self-efficacy, gender differences).

While student themes dominated, the other three themes were well represented. Design topics focused on theory and models and media attributes. Interaction and cooperation were the leading topics related to environmental issues. Teacher attribute topics included perseverance/confidence, learning styles, and beliefs.

Additional topics included culture and social/ethics issues. Both culture from a technology environment viewpoint and an international viewpoint appeared in many issues. Social/ethic issues included equity, access and copyright issues.

Instructional Science

Unlike the previous journals, the focus of this journal is not on technology but on learning. *Instructional Science* is an international journal of learning and cognition published six times a year by Kluwer Academic Publishers. "The primary aim of *Instructional Science* is to promote a deeper understanding of the nature, theory and practice of the instructional process and of the learning to which it gives rise." (http://www.wkap.nl/journalhome.htm/0020-4277, July 12, 2000).

We reviewed eight issues of *Instructional Science*, Volume26 Number 1-6 and Volume 27 Number 1-6. The numbering system used is misleading. Number 1 and 2 were included in one publication as were numbers 3 and 4. In the two-year time period there were four special issues: generic tutoring environment (GTE), metacognition, use-system interaction, and didactics. Each special issue included at least one editorial as an introduction to the special issue and some also included concluding comments.

Topics reviewed student issues/attributes and design issues. Student topics included:

- Achievement including performance and vicarious learning;
- Characteristics (self-regulation, motivation, reactions, attitudes, cognitive styles); and
- Processing (metacognition, knowledge construction, cognitive processing).

Tools to assist in the design process, such as authoring tools and newly developed design software, were included in design issues. Also included in this theme were specific media and media attributes such as user-interface. Environment issues and teacher issues received limited attention.

Summary of Journals

ETR&D received overwhelming support as the leading journal in the field of educational technology. The average number of articles included in each issue was 8.5. The types of articles and topics covered varied greatly from journal to journal and appear to be dependent on both the mission of the journal and the intended audience. Authors should carefully review journals to identify those that most closely match the content of their article and the audience they are trying to reach. Journals should also be reviewed to identify the dominant writing style and take that into consideration when selecting a journal for publication.

Advice for Authors

The second part of the email survey focused on the process of writing for publication. A review of previous articles on writing for publication in the field of educational technology seemed to focus on identifying and targeting a journal and the submission process. Newren (1992) contacted editors and summarized the many causes for rejection. Both Clemente, et.al. (1990) and Thompson (1995) emphasized the need to concentrate on writing style, targeting a journal and following submission guidelines.

This survey was interested in more personal suggestions. Frequently the most difficult part of writing is the process. While not all individuals responded to the call for suggestions for those beginning a publication career, the suggestions that were received focused more on the process of writing rather than the submission. Twenty individuals responded to "What one suggestion would you give a doctoral student or faculty member just beginning his or her writing for publication career?".

Three themes seem to emerge with analyses of the responses: work with a mentor, believe in yourself and what your are researching, and write frequently. Several suggested that the individual just getting started work with a mentor or collaborates with a faculty member.

> *"Apprentice under/collaborate with a faculty member who has established an understanding of the processes, strategies and priorities of publishing scholarly research."*
>
> *"Find a mentor willing to read your papers and provide you with constructive criticism prior to submitting them for publication."*

Others felt it was important to not only believe in what you are researching but to believe in yourself.

> *"Believe in yourself and believe that your ideas and your information are good. People just starting out tend to think that everyone else in doing great things but that their own work is trivial....that's a shame because so many people are doing great, interesting things but they never share it with anyone because they are embarrassed or they don't think it's good."*

Still others felt that it was important to concentrate on one or two projects at a time and to write every day.

> *"Write every day. Work on thins slowly and steadily over time, reserving the most creative and productive time of day for writing time."*

Certainly paying attention to detail and selecting an appropriate journal for submission are important. However, there is more of a personal side to the writing process and this was emphasized by those responding. Attitude and persistence are important. Making time for writing, not simply "finding" time, and collaborating with others are instrumental in becoming a successful writer. Perhaps, most important of all is belief in yourself and what you are writing. With the fast changing world of technology, exciting research is going on and all have something important to contribute to the discussion.

Conclusion and Recommendations

The purpose of this study was to identify and analyze the leading journals in the field of educational technology. While the top five journals all examine technology, they represent disparate views in the field and address a wide audience. The journals are all unique in their goals and mission, writing styles, and intended audience. Certainly, anyone in the field of educational technology would benefit from reading any of these journals but would gain a much broader and more balanced sense of research, theories, and visions from reading several. Collectively they provide a wealth of information to assist the researchers in identifying problems and areas of study needed to make a contribution to the growth of the field of educational technology.

In some cases, the topics presented in the articles are very similar. However, an article on distance education, for example, would need to be written quite differently to submit to *ETR&D* than to submit to *Educational Technology*. The general summaries presented here serve only to provide a concise look at the myriad of possibilities for publication in the field of educational technology. It is imperative that those preparing manuscripts actually review the journal they have selected for submission

It should also be noted that research articles do not constitute the majority of published articles. Frequently, novice writers make the false assumption that only results of empirical research will be published. There are many opportunities for publication of articles describing projects, special instructional methods, new models and paradigms, and future visions. Topics are only limited by the experiences, imagination, creativity and interest of the writer.

Practice in writing, as with all things worth doing, is important. The experts represented in this study as well as colleagues we have visited with indicate the importance of writing on a regular basis. Frequently, in the day to day workday, other activities take precedence over writing. Time should be blocked out for writing as a scheduled activity and care should be taken to guard and use that time to polish the skills needed for successful writing.

In summary, while the response rate to the email survey was lower than hoped for, the responses did represent what practitioners in the field of educational technology are reading and which journals were most respected by a broad group of leading professionals in the field. *ETR&D* was emphatically identified as the leading journal in the field of educational technology. Broad categories of topics emerged from a review of the top five journals. These categories (with some examples) include:

- design issues (models, theory, principles, media, and media attributes);
- student issues/attributes (achievement, learning styles, attitudes, perceptions);
- environment issues (interaction, collaboration, international); and
- teacher issues (pre-service teacher, confidence, attitudes, methodology).

Dissemination of research in educational technology is the responsibility of all professionals in the field. Publication in recognized journals contributes to the growth and recognition of educational technology. The information discussed in this article provides a base for selecting a journal for publication. It is up to each individual author to provide the personal side of creativity, dedication, and perseverance.

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